

AGAR BOLKO GE'ANI, CHIMONGANI, GAMCHATBATATANI ARO AGAR BOLONIKO BIKOTGIPA BOSTURANGKO BADING CHIWALANI

Rajib Kumar Borah
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Tok 1: TALATCHENGANI

1.1 Agarni Gimin Bakkandike Niani

Agar bol, smilatgipa bol, ian tangkame donggipa bolni bakrangoni, *Aquilaria*, *Gyrinops, Aetoxylon*, aro *Gonystylis*, jerangan Thymeleaceaeni bakoni ong·a. Iako rokomari bimingrangchiba minga jedake *'agaru', 'aloeswood', 'eaglewood', 'gaharu' 'oud', 'chin xiang',* aro '*jinkoh*'. Iarangko Indiaoni New Guineani chichangona aro Chinaoni Lesser Sunda chichangrangona a'songrango chaako nikna man'a. Uarangni gisepo, Agar bolko *Aquilaria* bakoniko mongsongbate man'a.

Indiao, agar bolrangko Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim, aro West Bengalni salgrochipak, unbaksana salgipengchipakni Karnataka, Kerala, aro Goa a·dokrangoba man·a. Agar bolrangko Shillong a·brini a·kawena agre Meghalayani pilak biaprangon ramramari chaako nika. *Aquilaria malaccensis*, jean Indiao agar bolni a·bachenggipa bak ong·a, una agreba Meghalayao nikronggijagipa *A. Khasiana*koba man·a.

Agar bolni ning·oni similgipa bibara dingtangmancha similatna aro saa-ding·aniko namatpilna gamchata. Agar bolko bilsi 2,000 mangna skangan sam tarina, similgipa bostuko tarina aro toromirangni nanganina mangsonge jakkalbaenga. Ia similgipa bibako cha·chat ba so·o similgipako tarina, similatgipa bibako tarina, be·en-bimango nonganirangko tarina, aro samrangko tarina bang·en jakkala. Agar bolni ga·teng aro cheksirangoni similgipa bibarang batrikrikbae agar bolko, bolni bipangko aro bolni sabisirangko champengaoni ong'kata.

Buringo chagipa bolrangni, ong·telaigipa similani bibara 10-15 percentrangni gita burungo donggipa agarbolrango man'a ama. Ia sekki jeoniko similgipa bibarangko man'achim, me·gimuoniko man·gipa sabisiko ba bol bipangko nosto ka·gipa chonchongipa jo·ongrangko champengaoni nakata. Similgipa bibako ong·atna gita mandeni jakchi nosto ka·e, mikronchi nikna man·gijagipa jo·ongrangko gimaate, aro bolni bimang nosto ong·aoniko namateba tarina man·a. Iarangni gisepo mongsongbatgipara mitam me·gimurangko mandeni jakchi tarie chipatanian ong·a. Komigipa damna bosturangko tariani gimin similani bibarangko tarianio nambatroroenga ine ka·dongna man·a.

Agar bolni nambatgipa aro gamchatgipa bosturangko man'aniara uani bolko ge'ani bewal, bolni bak, ge'ani ba ong'rongbaani biap, sekki man'baani bewal, me'gimu man'ani ruutani aro uko chimongani bewalo pangchaka. Agar bolko nama bewalo chimongode uni



Figure 1: *Aquilaria malaccensis* bolrang

namgipa bibarangarara ruuta somoirangona donga aro chel'a biaprangona sona rupa ko bading chiwala gita agar sekki koba bading chiwalna jakkalna man'a. Uni gimin agar bolko "Jo'olgipa sona" ineba agana. Agar bol'ko matchu mat rangba cha'jani gimin nosto ong'ja. Agar bol dingtang mikka kari, ba sal balwa ong'rongbewalsalrangoba ba nosto ong'ja aro dingtang dingtang a'bri a'pal a'patal oba chana man'a. Agar bolko name bewalo ge'ode gamode bilsi 10-15 ni gisepo chimongna man'a aro sekkirangkoba chimonge uni to aro dingtang dingtang gamchatgipa bosturangko bikotna man'a. Agar boloni ko sekki bikotanira bang'a kam ong'ata aro manderanko nanga. Una agreba agar bolko ge'ani gam'anio ba bang'a manderangko nangani gimin aro una agreba gamchatgipa bosturangko bikotanioba bange manderangko nangani gimin agar bol bagan wilwilao donggipa banga manderangna janggi tangna kamni chol mingsa ong'a.

Agar bolni gamchatani gimin aro agar bolko man'rongjani gimin *Aquilaria malaccensis*, je boloniko agar bibarangko mangsongbate man'achim ua bolni bak ko A'gilsakni a'songni Sorkarirang uko ripingna dintang dingtang niam reti rangko bikotaha aro ua bolko gimaaoniko champengna gita Convention on International Trade in Endangered species (CITES) ni Appendix II o rakkiaha. Ua appendix ko rakkianiara ua bolko skatang badinganiko champengani aro rippingani ong'a. Ua bolko India gipin a'songrang baksa bading chiwal na ong'ode CITES oniko permit nanga aro ua permit ko

niam gnang chimongako nigrike (Certificate of Legal Procurement) Assistant Conservator of Forests na bate komigijapipa Sorkarina kam ka'gipa permit ko on'a man'a.

1.2 Aquilaria malaccensis Lam ni gimin dingtale aganani



Figure 2: *Aquilaria malaccensis*

Aquilaria chu·gimik biming Latin katta 'aquila'oni a·bachenga jeni miksonganian 'do·gamdot' ba Akkadian katta 'eklu'oni ong·baa jeni miksonganian 'andala' ba 'ekelu' miksongania 'andalatbo'. Dingtangmancha "*malaccensis*"ko Malaysia a·songni sagal rikamo donggipa Malacca a·dokoni ong·naba donga ine aganaha.

Aquilaria malaccensis Lam. biap ka'sinao salrikkimo charonggipa bol ong'a. Agar bol bewalgita changroa aro ua bolni changroaniara 20 oni 40 meters on r changroa. Agar bolni ja'tingi bimangara bangsi rangni sronga gita sronga aro uni ja'diloni ja'tingona 2 meters mangna chua aro 60 cm mangona gipeng dal'a. Agar bolni bigil ara chatja, so'oma, a'ske ni rong, aro raka. Agar bol cheng'gipa ong'a ,nom'a, aro Cheksi rang jol'rengreng daka aro a'mangni rong ong'a.



Figure 3: *Aquilaria malaccensis* ni bi'jak

Aquilaria malaccensis bi'jak a ge'sangipa ong'a aro bi'jak bodol dake ong'kata. Bi'jak ni ga'teng 4mm oni 6 mm ro'a. bi'jak ro'rokrok dake apala aro 7.5 cm oni 12 cm ona ro'a aro 2.5 oni 5.5 cm mangona apala. Bi'jak ka'mani ja'pa acute, attenuate, ba obtuse bi'jak ki'te ra acuminate. Bi'jakni ja'dilra dakjringja pekwaka aro ua ja'diloni 12 oni 16 jora bipek nakata.



Figure 4: *Aquilaria malaccensis* bibalrang

Aquilaria malaccensis bibalrang bol ki'te rango bibala aro umbel ingipa rokkomo bipango man'a. Ia bibalni



Figure 5: *Aquilaria malaccensis* bite



Figure 6: Biterang aro uni bitchil

cheksirang bipek 2 oni 3 umbel rokkomo ong'kata, umbel prako bal 10 bibala. Bibal ga'teng 5 oni 15 mm ro'a , aro jolrengreng daka, 3 oni 6 ona mm ro'a. Bibalrang pentamerous aro campanulate, 5 oni 6 mm ona ro'a aro tang'seka, gisepo rimmitdildil dake tangseka. Floral tube ning'ao glabrous, Biterang ga'akningja. Calyx lobes ge' bonga donga, ro'rekrek daka, 2 oni 3 mm ona ro'a. aro petaloid appendage ge'chikung donga, oblong ba on'tisa ovate-oblong ong'a. Bibalni bipani Stamens ge'10 donga, filaments 1.2 oni 2 mm ona ro'a. Bibal bimani pistil bibal ning'aon ong'kata aro ro'rekrek daka. 1 oni 1.5 mm ona ro'a, 2-celled aro pubescent ong'a. Style obscure aro stigma capitate ong'a.

Bite loculicidal capsule, obovoid ba obovoid-cylindrical, 3 oni 4 cm ona ro'a aro 2.5cm apala. Bite compressed, pubescent, aro dal'roro glabrescent ong'batrikrika.

1.3 Agar bolni charonggipa biaprangni gimin talatani

Aquilaria malaccensis tangsimkame donggipa dal·gipa bolko dingtang dingtang biaprangoniko nikaha, jedake rong·srekarigipa, an·chengarigipa, ba rong·chun gnanggipa, a·a chijime a·sol dakgipa, a·kimbri dakgipa, aro chibol sepangrango donggipa biaprangoniko nikaha. Iarangko mongsongbate a·bri ja·rekrangoniko, onding-ondang dakgipa biaprangoniko aro tangkame donggipa buringrangoniko nikaha. Agar bolko ge·na a·ani rokomrangara chijimgipa, tu·gipa, an·chengarigipa aro bol bijakrang, cheksirang, dingtang dingtang samsirangni sojronge a·sal ong·gimin acidic pH donggipa a·arangan nambatgipa ong·a. Iako mongsongbate sagal kosakoni 0 aro 1,000 meterrangni gisepo chugipa biaprangoniko nikbata. Bilsigimiko mikka waanirang 1800oni 3500mm ong·e 20 aro 28 degrees celsiusmangni gisepo biapni sin·a ba ding·ani ong·e aro 80%ni gita biba chadoanirang dongode, *Aquilaria sp*. chapiltaianirang aro dal·roroanirang komia ine nikaha.

1.4 Aquilaria malaccensis a'gilsak gimiko suale ong'baanirang

1.4.1 A'gilsak gimikni

*Aquilaria malaccensis*ko bang·a Asia a·songrangni nalsaona agreba India, Bangladesh, Bhutan, Indonesia, Laos, Malaysia, Myanmar, Phillippines, Singapore, aro Thailand a·songrangona suale on·aha. World List of Threatened Treeso Iran a·songan *A. malaccensis* jelgipa ong·a ine segatchengoba, 2002 bilsio CITES ni am·sandipiltaianio Iran a·songo ua bolrang dongja ine sakkiko on·aha



Figure 7: A'gilsak gimiko *Aquilaria* bakrangko ko suale ong'baani

Table 1: *Aquilaria* bakrangko ko agilsakgimiko sualani

A'songni bimung	**Agarni bakrang ba rokkomrang**
India	*A. khasiana, A. malaccensis*
Nepal	*A. malaccensis*
Bhutan	*A. malaccensis*
Myanmar	*A. malaccensis*
China	*A. sinensis, A. yunnanensis*
Thailand	*A. crassna, A. hirta, A. malaccensis, A. rugosa, A. subintegra*
Laos	*A. crassna*
Cambodia	*A. baillonii, A. crassna*
Vietnam	*A. baillonii, A. banaensis, A. crassna, A. rugosa*
Peninsular Malaysia	*A. beccariana, A. hirta, A. malaccensis, A. microcarpa, A. rostrata*
Singapore	*A. beccariana, A. hirta, A. malaccensis, A. microcarpa, A. rostrata*

1.4.2 India a'songni ning'o

Aquilaria malaccensis (syn. *A. agallocha*) aro *Aquilaria Khasiana*ra agarin minggni rokomrang, jean Indiao ramramari chagipa bolrang ong·a. *A. malaccensis*ko mongsongbate salgro-salaram a·dokrangni a·bri ja·rekrango aro West Bengalo ramramari nikbata, jean sagal kosakoni meter 1000 mang chugipa a·brirang ong·a. Iako Kerala aro Karnatakani saliramchipakba chirikamjoljol ge·aha. Uarangko Tamil Nadu, Telangana, Andhra Pradesh, Goa, Maharashtra, aro Gujaratrangoba chu·onga gita bipangrangko ge·aha. *Aquilaria Khasiana* Meghalaya a·dokosan jelrorogipa ong·a aro gipin a'dokrango nikna man'ja.

Indiani sam-bolrangni bidingo namedake sandie nigipa Botanical Survey of India ni am'sandie niani gitade, Indiao chanchichipe hisap ka·e nigimin agar bipangrang bilsignimangna batgipa aro bipangni apale dokroani 10cm na dal·batkalani gimin komibeoba million 139.89 (13.989 crorerang) ong·a.

Table 2: India a'songo agar bolko sualani

A'dokni bimung	**Agar bol chu'gimik dongako chanchichipgimin**
Assam	11,43,00,000
Tripura	1,51,50,000
Manipur	32,00,000
Karnataka	24,20,000
Nagaland	22,80,000
Andhra Pradesh	10,00,000
Kerala	10,00,000
Maharashtra	3,00,000
Meghalaya	1,72,000
Arunachal Pradesh	25,000
Telangana	20,000
Mizoram	10,000
Tamil Nadu	10,000
West Bengal	5,500
Others	3,000
Chu'gimik	**13,98,90,000**

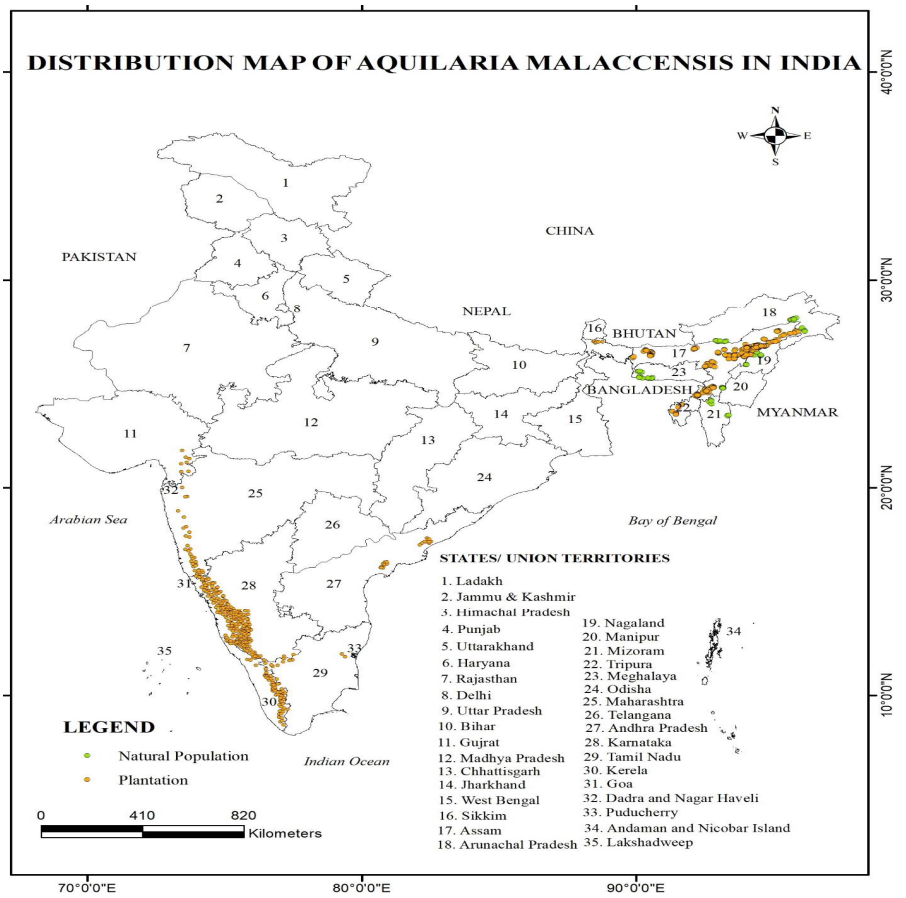


Figure 8: *Aquilaria malaccensis* ko India a'songo sualani

1.4.3 Indiani Salgro-Salaram A·dokrang

Indiani salgro-salaramo, *Aquilaria malaccensis*ko a·bri ja·rekrango charamramako nikbata jekai Assam, Manipur, Meghalaya, Mizoram, Nagaland, aro Tripura a·dokrango mongsongbate ua bolrangko bang·bate man·aha. Ua a·dokrangni ning·o donggipa biaprang aro a·ani rokomrang ua bolrangko dal·roroatna aro chaatna dakchaka. Mongsongbate agar boloniko bosturangko tarigiparanga Assam aro Tripurao ong·a. Assam a·dokan agar boloniko bosturangko tarichenggipa aro bang·bate ge·giparang, mongsongbate Golaghat, Jorhat, Sivasagar, aro Karimganj a·jarango ong·a. Dingtangmancha, Golaghat a·jaomangmang million 45mang agar bolni bipangrang donga, jeon ua bolrangko ge·na aro badingchiwalna taria.

Tripurao million 15mang ong·nasipile agar bolrangko chu·ongnika, North Tripura aro Unakoti a·jarango ua bolrangko ge·na gisiko nangbachengha. Ia a·dokrango agar bolko nokantini gisepon ge·tokaha,aro an·tangtangan uarangko palani aro breani cholrangko dake on·gilaha.

Manipurni Jiribam a·jao agar bolrangko bang·bee ge·ani gimin mingsingaha. Ia biapo agar bolko ge·aniko gamchatnikatna damrangko bariataha. Mizoramni mongsonggipa chibimani jokangenggipa nalsao agar bipang ritak ritak dake chabaroroe, a·dok gimiko chaatenga. Nagalando mongsongbate Mokokchung aro Mon a·jarango ua bolko ge·a, jeon agar bipangrang bang·en dal·dalaha.

1.4.4 Meghalaya

Meghalayao, Shillong a·brini a·kawe, gipin Khasi silongketgrim biaprang aro Brahmaputrani chirikam sepangjolo chi skonggipa biaprangna agre pilak biaprangon agar bolrangko man·na ama. *Aquilaria malaccensis*ko ge·na namgipa biaprangko ong·atna gita a·dokni dingtang dingtang biaprangko che·eme sandia aro bilsini karirangko nia, jedakode agar bolko ge·anichi a·dokni man·dapanirangko bariatna man·gen ine name nie mikkangchini gimin agansoaha.

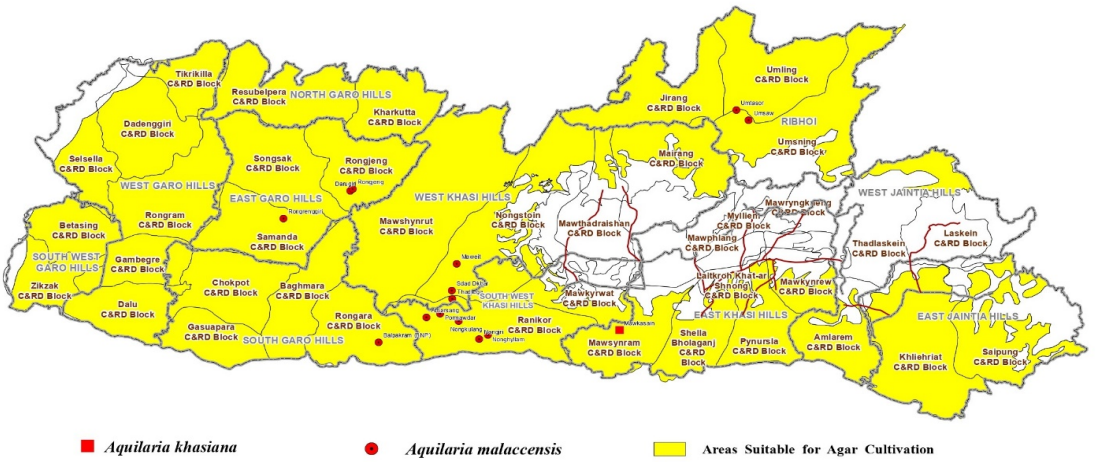


Figure 9: Agar bolko Meghalaya a'doko ge'na kragipa aro namgipa a'jarang

Tok 2: AGAR BOLNI BIMANG

2.1 Agarni Bimangko Tariani

Agar bolni bimangara bol ning·oniko similgipa took jekon oleoresins ine aganachim ua bibako chimongaoni ong·a. Ua oleoresins ba sekki Agar bolrangni ga·tengrang aro cheksirangoni bang'e man'a. ua sekki rangara pangtangtangko jo'ong rangoniko aro sabisirangoniko champengna aro warachakna gita ong'kata.. Buringo chagipa bolrangoni, ong·telaigipa similani bibara 10-15 percentmangni gita sekki ko man'a. Jensalo bolni ga·teng soa ba ga·tengko me·pilip jo·ong (*Neurozerra conferta*). jong·puaha unon ia bolni ong·baani a·bachengbaa Ia jo·ong namgijagipa saaniko chengknani bakrango ra·bitna man·a ine bebera·a, jekon bolni bitongona donatskaaha. Me·pilip jo·ong bolni bitong ning·joljol gongge ske dake a·kol bite, mikronchi nikna man·gijagipa chonchongipa jo·ongrangko napata aro jelroroata. Iandakgipa sabisi ong·atgipa chonchongipa jo·ongrang ka·sne ka·sne similgpa toko ba bibako (oleroresins) ong·katate, bolni jangchio similgipa gisimgipa bimangko ong·ata, uan bol kironi bimang ong·a. Similgipa bibako ong·atna gita mandeni jakchi nosto ka·e, mikronchi nikna man·gijagipa jo·ongrangko gimaate, ba bolni bimang nosto ong·aoniko namateba tarina man·a. Mongsonggipa dakna nanggniara me·gimurangko mandeni jakchi tarie ua bolo chipatanian ong·a. Komigipa damrangna bosturangko tariani gimin similgipa bibarangko ong·atanio nambatroroenga ine ka·dongna man·a.



Figure 10: *Neurozerra conferta*

Indiani salgro salaram a·doko, 135.14 millionmangni gita agar bolrangko ge·aha. Bolni ga·tengko cha·gipa chonchongipa jo·ongrang (*Neurozerra conferta*) donganichi Assam a·dokni Jorhat, Golaghat, Sivasagar aro Karbi Anglong a·jarango aro Tripurani mitam biaprango bang·bata bolrangan an'tangari jo'ong chiapaniko man·aha. Unbaksana Indiani salgipeng jolni Karnataka, Tamil Nadu, aro Kerala a·dokrango 2.5 millionrang ong·nasipile bolrang donga, ia gimik bolrangko agarin bimang ong·atna gita mandeni

jakchi samko taridapna nanga. Indake, mandeni jakchi samko taridapaniara agar bolko tarianio gamchatgipa ong·a

2.2 Ongtelaigipa Bimang

Ongtelaigipa obostarango, agar bolni bimangara nikronggijagipa aro dal·ninggijagipa ong·a. Agar bolrang mongsongbate bilsi kolgrikni ja·man similna a·bachenga. Agar bolni ong·telaigipa bimangara samtangtango donggiparang jedake chonchongipa jo·ongrangni jeldugaanichi ba bol bipangko nosto ong·atanichisa a·bachenga, jean mikronchi nikna man·gijagipa jo·ongrangna napani cholko on·anichi similgipa bibako ong·katatna man·a.



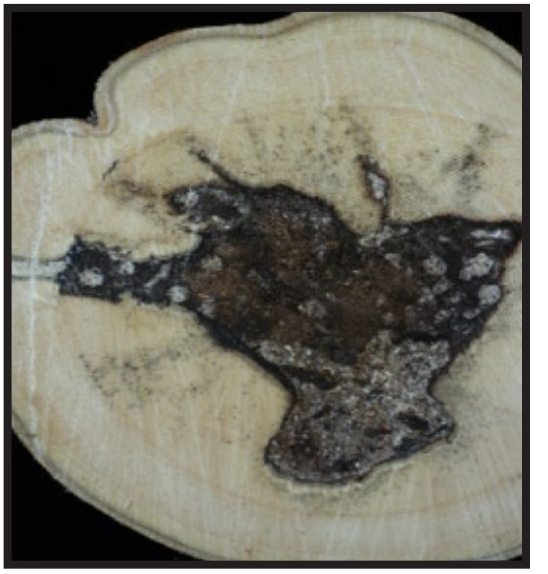


Figure 11: Mande jakchi dakchakako man'gija agar bimang ong'baani

2.3 Mande jakchi agar bipango jo'ong chipatani

2.3.1 Mande jakchi agar bolko nosto ka'e jo'ong chipnapani

Agarni bimangko mande jakkchiba sam tarie ong'katana man'a. Agar ja'tingko denchekchekanichiba ba kol puanichiba ba gojal datanichiba ba bol ja'ting ni bigilko ok'ge galanichiba agarin jo'ongko agar bipangona chipatna man'a. Ia bewalchi agar bimang ong'kataniara badita bang'e jo'ong chipatna man'achim uno pangchaka. Meghalaya ni Garo Hills a'doko , ge'e game cha'giparang wa'jolchiba agar ni jo'ongko chipnapatna jakkala. Nokwilwilao ong'ronggipa bostu jekai wa'a rangko jo'ong chipnapatna jakkalode nosto ong'aniko komiata. Chemical sam aro siltongrangko jakkalode agar bimang nosto ong'bataniko nikna man'a.



Figure 12: Mande jakchi agar bimang ong'bana dkchakani cholrang

2.3.2 Chemical samchi agar bimangko ong'atani chol

Chemical samrangko jakkalanichiba agar to ko a'bachengatna man'a.. Chemical sam aro hormones ba (jekai methyl jasmonate, soybean oil, jaggery, molasses, sodium chloride, *etc*.) agar bimang ko a'bachengatna man'a. Ia samrangkora bol ja'ting ning'ao dingtang dingtang bang'a bang'gija chipatna man'a. Ia samrangko bol ja'tingoni bolni dingtang dingtang cheksi rangona sokata aro agar bimangko ong'katata.



Figure 13: Chemical sam chi agar bimangko taroani dingtang dingtang cholrang



Figure 14: Mikkron chi nikna man'gijagipa jo'ong rangchi agar bimangko ong'bana taria

2.3.3 Tanggipa jo'ongrangchi agar bimangko ong'katani

Agar bimangko mikkronchi nikna man'gijagipa jo'ongrangkoba chipate agar to aro bimangko bikotna a'bachengatana man'a. Badita mikkronchi nikna man'gija gipa jo'ong rangko chipatna man'a inditan agar sekki bate ong'kata.

ICFRE-RFRI agar ko ong'katatgipa me'gimu rokkom briko am'sandie man'aha aro uko sandirikitgipa biapo tarie jelruruataha. Ia me'gimuko bol pangona bol ja'tingko electric drill chi ba borer chi 5-6 cm mang tu'e 45^0 angleo kol pue me'gimuko chipata.

Skanggipa kol ko a'aoni 1 m chue pua. Unoni kol gipinrangko 30 cm chel'grikao kol pua.. Bol gipeng 35-40 cm aro changroa 15-20 m ong'ode bang'jaoba kol 10 de pu telna nanga. Bolko gana jang'kerang dongode bol ja'ting gimikon kol puna man'a. (10 ml) me'gimu ni bitchiko bolni kolo syringechi chipatna man'a. Ua kolo me'gimu ni bitchi ko chipatani ja'mande kilchapchi tapatna nanga.Agar bimangko me'gimuu sikataani jasa ni gisepon nikna man'a. Uko bolni dingtangmancha rong ong'kataniko nie uina man'a.

Ja 5-6 ja'mano, dintangmancha bolo biap ong'kata aro agar bimang ua biaprango ong'kata.Ua agar ong'katgipa bolko me'gimu sikka bilsi gnini ja'manan chimongna man'a. Indiba nambatgipa aro gamchatbatgipa agar ko man'ade bilsi gittam ba bilsi gittam adha ni ja'man chimongo nambata.

Assam, Meghalaya, Tripura aro North Bengalo ICFRE-RFRI mandeni jakchi kolom rataniko jako ra·aha. Mandeni jakchi kolom ratanichi agar bolni bimang namama namja uko nambate mesokaha.



Figure 15: ICFRE-RFRI, Jorhat ni sandirikitgipa biapo agar bimangko ong'na taria

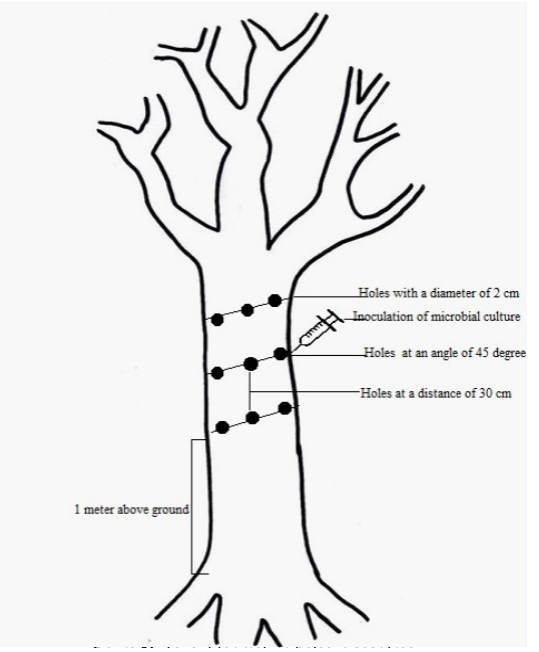


Figure 16: Agar bimangko tarina me'gimu ko chiaptani



Figure 17: "Sasi Inoculant" Agar bimangko ong'atna me'gimu tarie dongimin *Aquilaria malaccensis.*



Figure 18: Assam a'doko agar bimang agar bolo ong'baani



Figure 19: Meghalaya a'doko mande jakchi tarie Agar bimang ong'baani



Figure 20: Tripura a'doko mande jakchi tarie agar bimang ong'baani



Figure 21: North Bengal o mande jakchi tarie agar bimang ong'katbaatani



Figure 22: Sam ginde chi agar bimangko chipatani

Tok 3: AGAR BOL ARO UKO JAKKAL BEWALRANG AGAR BOL ARO UKO JAKKALANI

3.1 Agar bolko Mongsongbate Jakkalgiparang

Agar bolko mongsongbate jakkalbatgipa manderangara chengode Asia aro Middle Easto donga. A·songni sagal noksikrangoni, mongsongbate United Arab Emirates aro Saudi Arabiarangni antidamrango jeon agar bolko so·o similatna aro similgipa bibarangko ong·ate jakkalna namen gamchatnika.

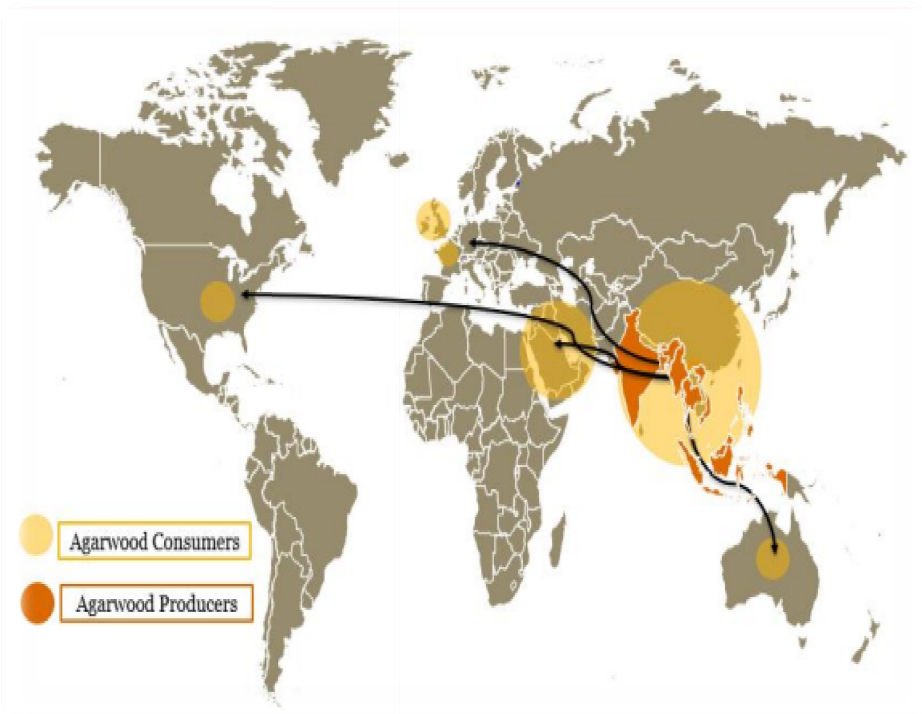


Figure 23: Agar ko mongsongbate tarigipa aro jakkalbatgipa a'song rangko noksao mesokenga

3.2. Agar boloni ko bikotgipa bosturangni rokkomrang

3.2.1 Agar bol bichem, ginde aro sa'sat

Agar boloni ko bikotgipa sa'sat bang'a asongrango aro dingtang dingtang a'songo donggipa jatrang uamangni niam reti aro olakkianirang aro manianirango jakkalanigimin namen gamchatbee ra'a. Middle East ode nokona sokgiparangko salaam ka'e rimchaksoa nio agar bolni bichemrangko sa'sat so'e rimchaksona

jakkala. Agar bolni gindeko dingtang dingtang similgipa bostu, jekai agarbatti aro jo'ong jong'mot rangko arikna sam rangko ba India a'songo bikotna jakala. Una agreba India a'songo nambregijagipa agar bol kode gutka aro gutka ni rokkomanti bosturangkoba bikotna jakkala. Agar bolko jong'motrangkoba aro kni tik rangkoba champenga jakkala. Agar bolko gipin a'songni jatrangde mande siani mangisi koba so'na jakkala. Taiwan a'songode agar bolko chu ringani rangoba taridapna jakkala.



Figure 24: Agarwood chips ba bolchem, bol ginde aro sa'sat tarigipa

3.2.2 Agar to

Agar to jekon "Attar" ba " Aguru" ine mingachim, uko banga jatrang similgipa nongani sitani ko tarina jakkala. Agar bolni dingtangmancha similani kora indake nongani sitani tarigipa karkana, aro uni bostu ko tariram karkana rangoba gamchate ra'a. Agar to ko sabon, kni auani bosturangkoba tarina jakkala. Middle east ode agar ko mande ni man'e cha'ani gadangko mesoka aro bang'a changon bia ka'ani niam rite rangoba jakkala.

3.2.3 Agar oniko be'en bimango nongna sitna bikotgipa bosturang

Agar to ko karkana rang mande bigil rango nongna sitaniko, tari tilongna jakkalgipa bosturangko aro similgipa to rangko bikotna jakala. Ia agar to ni dingtanmancha similgipa gun ara dingtang mande bigil sabisirangkoba sanna bananirangnaba jakkala. Uko mande ni ta'rakke budepa butchuma ong'a onikoba champengna jakkalgipa bosturangko bikotna jakkala.Una agreba mande bimango donggipa sabisi sakanchi ong'atgipa bibarangkoba ra'galna jakkala.











Figure 25: Agar niko be'en bimango nongna sitna tarigimin bosturang

3.2.4 Agar niko sam tarigipa bosturang

China, Japan, aro South Korea a'songrangoba, agar bolniko samrangko tarina, so·o similatna, aro jatni dakbewalrangna jakkalna manderangko dakdilenga. United States of America aro European Unionrang iako nambatgipa similani bibako chipkame dongatna jakkala. Agar boloniko bikotgimin gamchatgipa too be·enni sabisiko champengani, beholi saaniko champengani, sa·dikaniko komiatani, bringimin namgija balwarangko champengani, sa·dikaniko komiatani, aro okkriatani donga.Ian be·enni sabisiko namatna, be·eno kari bang·dugaaniko aro su·buko rongtalatana, aro be·en bigil nosto ong·giminko namatpilna dakchaka. Indiani manderang aro Chinani manderang agar bolni toko uamangni sam tarianio rokomari be·en bigilni sabisirangko samna jakkala. Ayurvedicni samo, ua bolni ga·tengoniko mandeni be·en bigil nosto ong·aniko samna jakkala, uandaken bijakonikoba konchi sabisiko aro be·eno ka·kite rokomari saanirangko samna jakkalaha.

3.2.5 Jakchi Tarigimin Bosturang

Agar bolko jakni changa-sapani ma·manti bosturangko tarina bang·en jakkalaha. Jakchi sol·e-repe bimang ong·atna changgipa mande ia gamchatgipa boloniko rokomari bimangrang jedake, jakgittoko gananirang, bakosrang, chonchongipa ripok sikanirang, aro nitoatna gananirangko tariaha. Agar bolo ong·telaigipa similani biba dongani gimin jakchi tarigipa bosturangko bariatchina mol·molaha, uamangni jakchi tarigimin bimangrangni nitoanina mittela aro chanchininge bosturangko tarianina uamangoniko bang·bate sandiaha.






Figure 26: Agar bolniko jakchi tarigimin bostu rang

3.2.6 Agarni Cha

Bijak damberang, mongsongbate skanggipa aro gnigipa chonchongipa bijakrangko cha tarina baseaha. Agarni chao pharmacological dongan baksa sa·dikaniko champengna, greng biritchurangni saaniko champengna, be·enni sabisiko champengna, cancer saaoniko champengna, ripbome saaonio champengna, bringimin namgija balwarangko champengna, mikronchi nikna man·gijagipa jo·ongrangko champengna, me·gimuoniko man·gipa sabisiko champengna, aro su·busik saaoniko champengna man·a. Agarni cha bang·a namgnirangko on·a. Ian ong·telaigipa be·enni saaniko namatgipa, mikronchi nikna man·gijagipa jo·ongoniko man·gipa namgijagipa sabisiko namatna cholko on·gipa ong·a. Agarni cha mandeko su·buna skatgipa aro cha·giminrangko jrongate okningko name rakkina dakchakgipa ong·a. Ian be·en bimangko an·seng-baljokata aro be·en bigilko rongtalata, blood sugarko name rakkia, aro an·chi jakruraaniko nambatroroatna dakchaka. Agarni chao koppi aro chini dongja.





Figure 27: Agarni cha

Tok 4: AGAR BOLKO GE'ANI ARO GAMANI

4.1 Bitchil chimongani

Agar bolko bitchil chi jawaie ge'a gamaniko daka. Agar bite breeako indimangba tangsekuengipa biteko mikka wachi somoi, June jaaoni August jaaona chimonga. Bite ko salgnina salakimo ran'ata. Salgnina bite ran'atani ja'man bite breteming bitchil ga'aka. Bitchil ge'prakni jreani 29 mg oni 135 mg ong'a. Agar ko Jrekuengipa bitchil jean 80 mg mang ong'kuengachim uko ge'o nambate chaaniko nikna man'a. Inditana jrea inditanan bitchil bang'e chaako nikna man'a aro chana somoi komibate nanga. Agar bitchil ara recalcitrant bitchil ong'a, jeko aganode ran'aton taraken ua bitchil chana man'ani bil gimaa. Agar bitchilni chaani bil komiani gimin agar bitchilko bite chimongani sal gni gittamni gisepon ta'rakke mother bed o ge'na nanga. Bitchilko ge'na skang dingtangmanchaa tarianiko nangja. Agar bol bilsi 6-7 ni gisepon bite nangna a'bachenga. Bree gimin agar bol pangprakon 19000 bitchilrang bilsi prako chana man'a.

4.2 Bol chara ko ge'ani bewalrang

Agar bitchilko 1 oni 1.5 cm a'sal ning'tuao ge'na nanga. Bitchil jawaijokon jringna chi runa nanga aro sal rakaoniko chel'chakatna nanga. Bitchil chaani bewalara epigeal, jeko aganode a'sal kosakgilgiloni chana a'bachenga. Ua bitchil ge'aoni sal 10-12 ni giseponi chana a'bachenga aro jasa ni gisepon chaa matchota. Jensalo chara changroa 3 oni 5 cm (40-45 sal) ong'aha ua chara rangko poly bags (9" x 6") dal'ao jawai e tarie dona nanga. . A'sal, an'cheng aro matchu ki'ini ratio (1:1:1) o brine agar charako ge'na nanga. Bol chara de biap chana a'a ra'doako nanga, chi skonge dong'gijagipa biapko basena nanga. Bolchara ko chi rubekgija komikale chiruna nanga , chara chabachengo sal rakaoniko naljoke somoi gita polybagona ge'jitna nanga..

Je agar chara rangan 2 feet mang changroahachim uarangkode polypotona ge'jitna nangna.



Figure 28: Bol charako mother bed o jawaiani




Figure 29: Bol chara ko polybags ona ge'jitani

4.3 Agar bolko ge'ani

4.3.1 Nokwilwilao ge'ani



Figure 30: Nokwilwilao agar bolko ge'ani

Agar bol agre bol dal'jani gimin je biap gal'ako man'aoba ge'na man'a. Agar bolko noktangtangni wilwilao, office ni, karkanani, skulni, ba hospitalni wilwilao ba ge'na man'a. Nokwilwilako nitoatana agreba agar bol salakim on'a aro balwa rakaoni koba naljoka aro ge'e game cha'giparangnaba janggi tangani chol mingsa ong'a. Nokwilwilao ge'ode a'bachengo dongbaengipa a'pal, bari bagan rangoba ge'chape janggi tanganio chol on'dapani ong'a.

4.3.2 Bund aro Bagan eri rango ge'ani

Agar bolko bagan, a'pal, burung aro indake gal'chipe galgimin ma'manti biaprangni eri rangoba ge'na man'a. Agar bolko sepangchapchap ba ge'na man'a. Ua bolko foot sa sepangchapchap ba ge'na man'a.

Bilsi bonga ong'gipa agar bolni ja'tingara barbed wire aro mesh bera kaa koba ra'chakna raka. Eri songani agreba sepangchapchap agar bolko a'pal, bagan ge'aniara eri songa baksa bera ka'chapani gitaba ong'jola. Gojal, wire, bolko matatanichiba agar jong'motko ong'katatani chol sa ong'pilani ong'a.

4.3.3 Block ge'ani

Agar bolko a'bri a'solsol dakgipa biap, chi rikgamo, aro buring galchipgimin biaprangoba ge'na man'a. Agar bolko, gamchatgijagipa bite bolrangkoba bodol sikkae ge'na man'a. Agar bitchil jawai gimin rang bang'e tangna gita man'jani gimin agar bitchilko mikka wachi a'bachengo ge'ode bate tangbata. Chijrim jrim daka somoi aro mikka chi man'anichi agar chara rang bang'e tangbataniko nikna man'a. Agar bolko ge'ani gisepgrikaniara ka'mao janapgipa gita ge'o nambate chaaniko nika. Jekai:

- 2x3 meters o, 1,700 pang hectare prako gipin bol baksa ge'chapna man'a
- 2x2 meters o, 2,500 pang hectare prako gipin bol baksa ge'chapna man'a
- 1.5x1.5 meters o, 4,400 pang hectare prako gipin bol baksa ge'chapna man'a

Chi sikkongjana gita aro chi sikkonge agar bolko nosto ong'atjana gita chi joksole galna name na'la ko ba (2x2 feet) 10-meter gisepgriko cho'na nanga. Bol chara ko ka'sin attam somoi rang oba sal gopani somoi rango ge'o nambata. Ge'ani a'kol dala 30-50 cm^3 aro ge'na bewal skangan A'kol rangko cho'e donsona nanga. Ge'na skang matchu ki'i gitcham min'gimin ko 10-15 kg pit prako a'sal aro an'cheng baksa brinna nanga. Iako dakanichi samtangtango dongipa biap bol chana nama cholko dakchaka. Bipangni samgilgil a'sal ko name sin'jetna nanga aro chiko chara an'tangari tangna man'a man'ja dipetna rujringna nanga. Tangmangijagipa chararangkode apsan wachi karion bodol rike ge'na nanga.

Bilsi 8-10 ja'man, 40% bolrangko den'e galna nanga jedakode je bolrangko ra'rikahachim ua bolna name sal, a'sal rangko name dal'e tangrikna dakchakaniko man'gen. .

Burungo ong'tele chagipa agar bolrangkode de'na ko beng'na nanga aro

champengna nanga.





Figure 31: Agar bolko gipin sam bol baksa ge'chapani



Figure 32: Anaros baksa agarko ge'ani



Figure 33: Cha bagan o agar ko ge'ani



Figure 34: Agar ko gulmoris, gue aro cha baksa brine ge'ani




Figure 35: Teirk bagano agar ko ge'chapani

4.4 Agar Baksa Gipin Bolrangko Brine Ge'chapani

Agar bolo gipin sam bol chaaniko champengbewalgipa to ba sekki rang dongjani gimin ua bolko gipin me'su samjak ba bite bolrang baksaba ge'chapna man'a. Uko burungni bol baksa ba ge'chapna man'a aro Meghalaya a'dokode gipin burung bolrang baksa ba ge'chapani ko nikna man'a.

Agar bolko gipin sam bol ba me'su, bite bol baksa ua bolrangni gisepgrik o nangani gita ge'na man'a. – Agar bolko patchouli (*Pogostemon cablin*), sarpagandha (*Rauvolfia serpentina*), pepper (*Piper longum*), aro gipin sam bolrang baksa ba ge'na man'a. Agar bolko cha bagan baksaba cha bagan ni eri rangoba ge'aninichi ong'ronggijagipa a'sel aro balwa rakkarango naljoke rakkia.. Agar bolko holdi, e'ching, anaros rang baksaba 50 cm gisep gale ge'chapna man'a.

4.5 A'sal aro janggi gnaggipa a'sal

Agar bolko burungrango aro a'sal namgipa biaprango ge'ode dingtangmancha gipinchiko a'sal ra'bae ge'na nangja. Indiba agar bol dal'dromitingo a'sal ko on'dapna nanga. A'salo biba napna man'agita aro a'sal namdapatna gita ong'kattelgipa bol bijak aro burungni a'sal man'giparangko on'chapna nanga jekai mingimin gitcham matchu ki'i, bol bi'jak mingimin a'sal, narikgel bichep rang. Matchu ki'i gital kode a'sal baksa brinjao nambata. Jensalo ong'rongtelgipa a'salrangko brinachim, rhizosphereo (jean 0-45 cm a'sal kosak aro ja'dil ko dulao dongachim) bang'gen mikronchi nikna man'gijagipa jo'ongrang bata aro ua jo'ongrang donganichi a'sal ko bol chana dakchaka.

A'sal namgijagipa biapo agar bolko ge'ode 30-50 cm^3 size pit dal'ao ge'na nanga aro unbaksana , 1-1.5 kg gitcham mingimin matchu ki'i koba a'sal baksa brina nanga. Bilsi changgipinrango nitrogen (N), P_2O_5, aro K_2O ko 10:10:4 ratio o ka'mao janap gimin

gita brina nanga,:

- Gnigipa sal : 200 g/tree
- Gittamgipa sal: 300 g/tree
- Bri gipa saloni: 500 g/tree

Dok gipa ba sni gipa salo nide , nitrogenous fertilizer ko 400-500 g/tree bilsi prako mikka wachina skang aro wachi kari ni ja'man brina nanga. Iako dakanichi bolko nom'e dongata aro jo'ongrangko napna altubatatna aro agar bimangko ong'katanio dakchaka aro agar ko bang'bate man'anio dakchaka.

4.6 Agar ni sabisi aro uko champengni

4.6.1 Agar bi'jakko cha'gipa.

4.6.1.1 Agar bi'jak cha'ani chinrang

Agar bolko mongsongbate nosto ong'atgipa jong'motara agar bi'jako cha'gipa jong'mot ba mepilip ong'a jekon *Heortia Viyessoides* ine agana. Ia jo'ong ara agar charam biapko nosto ong'rongata aro bilsio changnimang bijako cha'e nosto ong'ata. Ua skanggipa May-June jarango nosto ong'ata aro changsatai August Sep jao nosto ong'attaia. Agar bolko sal rakao bangbang ge'giparangko ia jo'ongchi nosto ong'atako man'bata. Salakim o ge'gipa agar bolrangko inditana kingkingde jo'ong cha'a komikala. Ia jo'ongrangara agar bolni bi'jakko cha'e agar bolni dal'droaniko komiata.

4.6.1.2 Bolko Nosto Ong·atgipa jo'ong

Ia bolko nosto ong'atgipa jo'ongkora *Heortia vitessoides* ine agana.

4.6.1.3 Champengani ba sabisiko komiatani cholrang

Ia bolko nosto ong'aniko champengatani cholrangara jakchi me'pilipko chimonge so'e galanichiba dakchaka. Bang'e topgipa bi'jakrangkode nitrogenous fertilizer chi bi'jakrangko satpretna man'a jedakode bol chara ta'rake chapretgenchim. Neem to koba sal 7-14 gisepgriko satanichi jo'ong ko komiata. Do'o beng'blok jilanichiba ia jo'ong rangko komiatna man'a.



Figure 36: *Heortia vitessoides* in Agar Tree

4.6.2 *Aquilqria malaccensisni* cheksi ran·anggipa sabisi



Figure 37: *Aquilaria malaccensis* noi cheksi ko ran'krepatani

4.6.2.1 Ram·angani Chinrang

Ja·pangni ga·teng aro ja·dilrangni soangengako name nikaha. Cheksirang altubee be·ningaha, bolrang sikrepaha aro bon·kame siangaha.

4.6.2.2 Bolko Nosto Ong·atgipa jo'ong

Agar bolni ja·dilrangko nosto ong·atchenggipara *Pratylenchus* sp. jo·ong ong·a, uagita *Fusarium solani* me·gimu ong·e bolko soatenga ine namedake niaha.

4.6.2.3 Champengani ba sabisiko komiatani cholrang

Biopesticidesko jakkalani, jedake neemni to (3%) ba neemni bite ning·oniko bikotani (5%) bol ja·pangko duulani, nangdima ba nangdimgijanio, chu·sokataniko man·aha.

4.6.3 *Aquilaria malaccensis* ni damping off sabisi




Figure 38: *Aquilaria malaccensis* o damping of sabisi ni chinrangko nikenga

4.6.3.1 Ran·krepani Chinrang

Ia sabisi mongsongbate bitchilko jawaichakram biaponi bimik nabamitingo ong·kata. A·bachenggipa gadangrango, bimikoni nabagipa bipangrang rongdimele dal·rakgijaniko mesoka aro a·ani kosakgilgilo donggipa ga·teng aro ja·dilni chonchone nosto ong·aniko nika. Uni ja·man, bijakrango kaltaprue gitchakrangaona apsan tom·dake, bijak gimikko pindapa. Bimikoni nabagipa bipangrangko chio sim·e donani gimin aro ga·teng sikrepani gimin biap jitataha. Namgijagipa sabisini a·sel, bimikoni nabagipa bipangko siatanichi ja·dilko soatenga.

4.6.3.2 Champengsoani

Bitchilrangko satna skang, a·ao sal ja·dil nangatna nanga ba bitchilko jawaichakgipa biaprangko 4% mangna gita bibarangchi so·mikna nanga ine aganaha. Bitchilrangko jawaichakgipa biaprangko sal 15na kingking plasticrangchi pindape dona nanga

Tok 5: AGAR BOLKO CHIMONGANI.

5.1 Chimongani gadang

Agar bolko chimongani agar bimang ong'katani aro sekki ba oleoresin kirorio ong'katani kri chimongna man'a. Bolo gisim gisim dake ong'katanian bolo me;gimu cha'ani chin ong'a. Ia gisim gisim bolo nakatako nie ia agar ko chimongna man'a. Burung rangode agarwood bimang ong;na bilsi 40mangona nanga, indiba ia ruuta somoi rangko gelna gita jaktangchi me'gimu rangko chipatanichi chimongani somoiko komiatna man'a aro bilsi 10-15 rang gisepon agar bimangko ong'atna man'a.

5.2 Chimongani somoi

Agar ko ran'kari January oni May jarangona chimongna man'a. Ia somoirango chimonganichi agar to ko bate man'a aro stikgipa sekki ba komibata.

5.2.1 Kosakgilgil agar bimang ong'ani ko uiani ba chinrang

Agar ong'kataniko a'paloni nike uiatani chin rangara jo'ongrangni kol puani, sekki dake a'koloni nakatani aro bol ja'tingo bol ginde bang'e tope ga'akani rangan chin ong'a. Una agrede kolko tipate bolni chadapani, bol ro'rekrek bretani aro kol ning'tue ong'katanirangan chin ong'a. Ketchra bang'e ong'katani, aro ketchra bitip saani rangba, bol'bijak chonbate chaani aro rimitjimjim chaanirangba agar tom'ani chinrang ong'a. Bol ko hammer chi doktingtingo bangbang kongkrang gamaniba agar ong'katani chin rang ong'a.

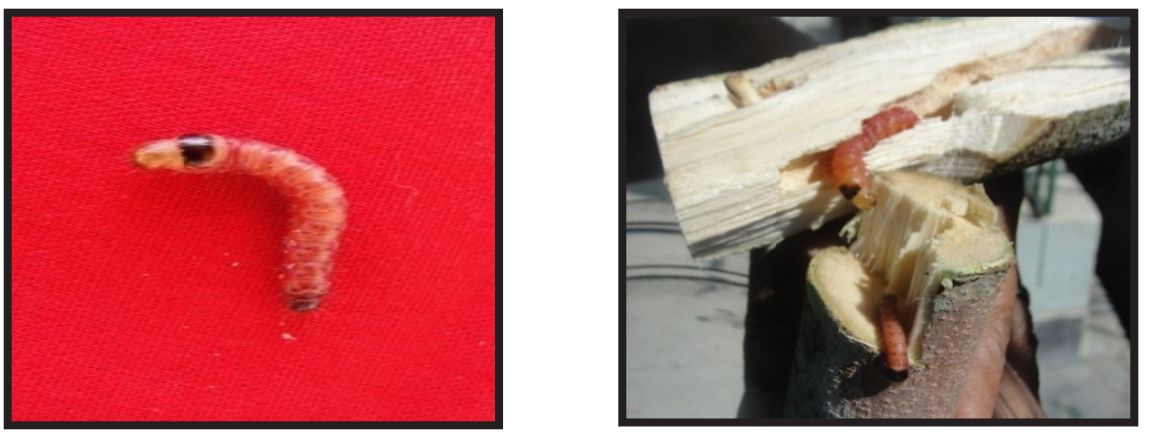


Figure 39: Agarko su'protgipa jo'ong



Figure 40: Agar jo'ongni bol ning'o su'prote napani



Figure 41: Agar boloni jo'ong nape jing'jonggipa bitchi nakatani



Figure 42: Agar bolo jo'ong nape bol ginde bol ka'mao topani



Figure 43: Jo'ong kolko an'tangari tipani



Figure 44: Bol ja'pang brete onng'ani



Figure 45: Jo'ong ramao agar bimang ong'katani

5.3 Chimongani dakani aro ka'gni kamrang

Agar bolko den'ani ja'man bolko chonchone den'chemchema. Agar gnang gipa bol bichemrangko sekki gri giparangoniko ma'eke don'a. Ia dingtangmancha ma'eke donanio bang'gen manderangko nanga.

Agar to ko bikotnara agar bolbichemrangko chi ning'ao salgni ba salgittam na sripe dona nanga. Ua ko stainless-steel sorea rango Steam distillation unit ona stekgipaao dona aro 30-36 kontana indaken dona. Ia konta 36 na distillani unit o teke donanichi agarin to chioni dingtang ma'eka aro ia to ko balwa jokna man'gijagipa boyom rango chipe dona nanga. Man'a dipet aluminium ni boyom rango chipe donode ua to nambate aro ruutbate dongbata.



Figure 46: Agar bolko den'e chimonga



Figure 47: Agar bolko den'chemchema



Figure 48: Agar bimang ong'gimin bol aro bolko chimongani bosturang



Figure 49: Agar ko chi bibako rite to ang'katani



Figure 50: Jakchi agarko bikotenga



Figure 51: Agar bolni bolchem ba chips



Figure 52: Agar toko bikotna skang bolchemko chio dipe dona



Figure 53: Agar ni to

Tok 6. AGAR NAKATANI ARO AGAR GE'ANIO KOROS ONG'ANI ARO GAM MAN'GNI

6.1 Man'ani

Bilsi 10-agar bol oniko 3-4 kg chips ko man'a. Ia bol bichemrangko chio biba ding'atode 10-15 kg agar to rangko bikotna man'a.

6.2 Ge'e koros ong'ani aro man'gnirang

Agar to gadang gittam namani gadang donga jekon *Boya*, *Boha*, aro *Khara* ine agana. Agar to ni dam agar toni gadang namani kri dingtang dingtang ong'a. Agar to ara Rs. 6 lakh/kg oni Rs. 2 crore/kg ona tang'dona man'a. Mongsongabate Rs. 10-30 lakh/kg ong'rong bata. Agar chips ni dam ba dingtang dingtang gadang donga. Rs. 80,000 – Rs. 100,000/kg ona gadang donga. Bilsi 2001, Hojai Forest Division, Assam o bolgimik agar ong'katgimin bolko Rs. 1.10 crore na palaha. Bang'a bolrang jerangni dam Rs. 15-30 lakh rang dam ong'gipa bolrangko da'alonaba Northeast India a'jarango nikna man'engkua.

Hectare sa o, 1,700 bolrangko 2 x 3-meter gisepgriko ge'e bilsi 15 na ripingode agar bolni baganko chalaiani dam Table 3 mesokgimin gita dam ong'a.

Table 3: Bilsi 15 mangna agar bolko ge'e rakkiani koros rang

Koros ong'atgipa kamrang	1st Year (Rs.)	2nd Year (Rs.)	3rd Year (Rs.)	4th Year (Rs.)	5th Year (Rs.)	6th – 8th Year (Rs.)	9th – 15th Year (Rs.)	Total
Bera kaani aro tariani	16,000	3,000	5,000	18,000	5,000	5,000	-	52,000
A'a oani aro a'kol cho'ani	85,000	-	-	-	-	-	-	85,000
Bol char ani dam	17,000	-	-	-	-	-	-	17,000
Chara ge'ani dam	5,100	-	-	-	-	-	-	5,100
Compost	10,000	10,000	9,000	10,000	10,000	-	-	49,000
A'sal	-	7,000	7,000	8,000	8,000	-	-	30,000
A'sal satani dam	5,100	5,100	5,100	5,100	5,100	-	-	25,500

Koros ong'atgipa kamrang	**1st Year (Rs.)**	**2nd Year (Rs.)**	**3rd Year (Rs.)**	**4th Year (Rs.)**	**5th Year (Rs.)**	**6th – 8th Year (Rs.)**	**9th – 15th Year (Rs.)**	**Total**
Ge'ani ja'man simsakani dam	1,25,000	1,25,000	1,25,000	1,25,000	1,25,000	3,75,000	8,75,000	10,00,000
Me'gimmu sikatani dam	-	-	-	-	-	4,76,000	4,76,000	4,76,000
Dintang dingtang nanganirangni dam	20,000	2,500	2,000	3,000	2,000	5,000	8,900	34,500
Chu'gimik	**2,83,200**	**1,52,600**	**1,53,100**	**1,69,100**	**1,55,100**	**8,61,000**	**13,59,900**	**31,34,000**

Hectare sa agar baganko rakkie man'gni rangko Table 4 o talataha.

Table 4: Hectare sa o 1700 agar bolrangko bilsi 15 na rakkiode.

Tarigimin bostu	**Bol pang**	**Bolprako man'gni bostu (Kg)**	**Kg prakni dam (Rs. / Kg)**	**Man'gni (Rs.)**
Boya*	250	25	10	62,500
Dum (Low Quality)	550	40	100	22,00,000
Dum (High Quality)	400	50	1,000	20,00,0000
Botali Mal	500	0.5	5,000	12,50,000
Man'gnini Total				**2,35,12,500**

*Boya – After 7-8 years

Bilsi 15 ni ja'man man'gni : Rs. 2,03,78,500 (Rs. 2,35,12,500 - Rs. 31,34,000) ba Rs. 2 crore hectare prako man'a ama.

Tok 7: Agar bolko ge'ani niam ja'rikani

7.1 Bol den'ani niam aro bikotani niam

Agar bolko den'aniko Meghalaya Tree Felling (Non-Forest Areas) Rules, 2006 niam ko ja'rike den'a nanga. Ia niam ni gitade agar bolko bagan tango ba nokmani bagano ge'genchimode aro Sorkariniko tangka gri ge'a ong'ode District Councilni Chief Forest Officer baksa register ka'na nanga . Agar bolko sorkarini tangka chi ge'ode Sorkarini a'ao ge'ja maina ba nokma, ba an'tangni bagano ge'genchimoba Divisional Forest Officer Territorial baksa register ka'na nanga.

Ia niam ni gita , bol pang ritchasa na komie den'a nagode ode Department of Forest and Environment ni Conservator of Forests Territorialni ko permission nanga. Bol pang ritchasana bate den'a nangode Chief Conservator of Forests Territorial niko permission nanga.

Sorkarini a'ao agar bol ge'gimin ko den'ade Conservator of Forest ba Chief Conservator of Forest ba ong'ja maina permission ni application ko Divisional Forest Officer Territorial ni office o on'a nanga. Sorkariniko tangka paisa man'e ge'gipa bagan ba adha tangka paisa man'achi bagan rikgipa rangkode je District Level Officer ni office oniko paisa man'e ge'achem ua officeo applicationko gal'na nanga. Burungo ong'gija, bagan ba nokmani bagano ge'gipa agar bagan jenan Sorkariniko maming paisa man'gija rakkia chim ua bolrangnade District Council ni Chief Forest Officer o application galna nanga.

Agar bolko aro agar bolni bostu bikotgiparangko gario ra'ongkata am'ode bol den'a permit man'ani ja'man gario ra'ongkatnaba ba Divisional Forest Officer Territorialniko transit pass ko ra'na nanga.

7.2 Agaroniko bostu bikotani

Agar processing unit ko bikot nade Wood Based Industries (Establishment and Regulation) Guidelines, 2016, Ministry of Environment, Forest and Climate Change, Government of India ni niam tarigipako ja'rikna nanga. Ia niam ara dingtang dingtang state ni nangani gita aro stateo dongenggipa niam o pangchake bang'a a'dok rangan niam ko tariaha. Boloniko bikotgipa karkana ko kulina de Forest and Environment Department oniko license ra'na nanga.

7.3 Agarko a'giksak gimiko bading chiwalani

Gulf a'songo gam jin batrikrikanichi aro man'e cha'gipa batrikrikanichi, agar jakkalaniba aro jakkalna dabianiba bilsi chikung ni gisepo batrikrikaha. Gulf a'songrangon agar ko mongsongbate jakkalbata.. Ia agarna dabiani ra agar ge'gimin rangna aro chimonggimin rangna bata. Ia dabia batanichi aro nangagita sokata komiani chi agar dam baririkrikengaha aro chimongani bewal namgijarangko ja'rikna nanganirango ga'akenga. Ia namgijagipa bewalrangko ja'rikanichi agar bol komirikrikangengaha aro agar ni bostu ni gadang ba komirikrikengaha ine nika. Ia dam rakbatrikrikaniara agar bolko ge'na dingtangmancha gisik nanganirangko ong'katbatatenga ine nikna man'a.

Agar bolna dabia batani gimin aro sokatani komiani gimin *Aquilaria malaccensis*, jean India asongo mongsongbate agar ko man'achim uko, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) ni appendix II o rakkie "gimaanggipa bolni jat" ine bimung done ripinganirangko a'gilsak gimik on dakenga.

Burungni agar ko bading chiwalaniko a'gilsak gimikon niamni gita on'ja. Bagan bario ge'gipa agar kode bading chiwalna on'a indiba CITES niam rango pangchake ja'rike bading chiwalna nanga. Agarni bak gimikon aro agarniko bikotgipa bostu gimikon ramramari bading chiwalna on'ja. Agarni bitchil aro chara kosan badingna niam gita man'aia. Agar bite, bol bi'jak, agar bol ginde aro uni bosturangko badingna skang Export Permit ko CITES Management Authority ni office oniko ra'na nanga. India a'songode ua permit ko Additional Director General of Forests (Wildlife), Union Ministry of Environment, Forests and Climate Change ni CITES Management Authority oniko permit ra'na man'a.

Export Permit ko CITES Management Authority, Certificate of Legal Procurement (CLP), Forest and Environment Department ni lekka see on'gipao pangchake permit ko on'a man'a. Ia CLP ko komi beoba Assistant Conservator of Forests rank na komibatgijagipa sorkarini officer rang on'na man'a. CLP ko niam rangko ja'rike bol ge'ama ge'ja aro niam gita bol den'ama den'ja aro bostu bikotama bikotja am sandie CLP ko tarie on'a.

Jean agar bolko bading chiwalengachim, ua Divisional Forest Officerni Certificate of Origin on'gipa lekka ko , kachario affidavit tarie , bolko aro bosturangko name chipani ja'mano CLP ko Divisional Forest Officer oniko ra'taie, Export Permit ko CITES Management Authority oniko ra'na man'a.

Agar niko bikotgipa bosturangko stamp paper o ia bosturangko niam rangko ja'rike bostu tariaha ine see tarina nanga.

The CITES Management Authority, India a'songo ge'bri office donga jemangan Kolkata, Mumbai, Chennai, aro Delhi ong'a.

Agar aro agarin bostuko bikotgiparangko bading chiwalna niam gita ge 12 rama kuliaha. Ua rama rangara Amritsar, Chennai, Delhi, Kandla, Kochi, Kolkata, Kozhikode, Mumbai, Mundra, Nhava Sheva, Thiruvanathapuram aro Tuticorin ong'a.

7.4 Bilsi antina bading chiwalani Quota

Bilsi anti on agar aro agar bolni bostuko baditana bading chiwalna ama ua ko dingtangmancha sandie amrikitani ja'mansa bading chiwalani gadangko uiata. Ia sandie amrikitanikora CITES ni scientific authority ka'a. Ia Scientific Authority baditana mancha bading chiwalaniko daka uko nirike see rakkia.

Ia Scientific Authority badita na king king badingna man'genchim aro baditana king king bading chiwalode agar bol burungo ba ge'arang komijawachim uko nigrike CITES, ni Management Authority na ku'patianiko aro nama skianiko on'a. Ia ku'patianiko 'Non-Detriment Findings' (NDFs) ine agana ba nosto ong'atgija nikanirang ine agana.

Botanical Survey of India, aro Indian Council of Forestry Research and Education - Rain Forest Research Institute (ICFRE-RFRI) India a'songode Scientific Authority ine songako man'aha aro ia dol gni "Non-Detriment Findings Study" ingipa sandiani rangko daka aro CITES bading chiwalani ku'pattianiko daka. Ia sing' sandianichi 1,51,080 kg agar chips aro 7,050 kg agar to bilsi prakna bading na man'gen ine see on'aaha.

Meghalayana badingani quota ara 200 kg chips/ powder/ non-exhausted sawdust aro 9 kg agar to ong'a.

7.5 Nokni nanganirangna jakkalniko champenggija on'a

Nokni nanganirangna jakkalna 1 kg agar chips, 24 ml agar aro, jora gni prayer beads ba malako sakprakna export, permit gri badingna niam on'a.

7.6 Agar boloniko bikotgipa bosturangko badingani

Agar aro agar oni bikotgipa bosturangko ITC-HS Codes chi badingna man'a. ITC-HS Code 12119080 agar bolko aro agar bolni chips aro bol ginde ko badinganio janapa aro ITC-HS Code 33013010 ara agar to ko badinganiko janapa. Iana agreba agar dingtang dingtang rokkomo tarie ba badinganiko daka jekai sam, bolniko bimang kite tariani,

bipang tangipa, bolni rokkomanti bosturang. Basakoba ia bosturangko ITC-HS codes o brin bawee ong'ata

Tok 8: Bon'atani

Agar bolara Meghalaya a·doko manderangni janggi tanganina dakchakaniko on·gipa mingsa chol ong·a. Agar bolko ge·ani, uko nirok simsakani aro uko silatania songo donggipa manderang tangka paisa man·ani cholko on·an baksa ia ong·telaigipa gamchatgipa bolko ripinga gitaba ong·a. Kitapo janapbaa gita, agar bolko simsake dal·atna gita bitchil chimongaoni bipang dal·baaonan on·kange kam ka·osa agar boloniko namgipa bimangrangko ong·katatnaba man·a.

Agarni gamchatani aro uni dam a·gilsak gimikon da·o tang·doengaha, jedake perfume tarianio, samrangko tarianio aro jatrangni manianirango jakkalanirango ong·a. Ia indake dam gnangania agarko ge·anio altuae bang·a tangka paisarangko altuae man·gen. Niamrango pangchake kakket ong·e bading chiwalaniara tiktak ong·e manderangni nanganirangko on·a man·gen aro agar bol bipangko ripingnaba dakchakgen.

Mikkangchiko niksamsoe niaton, mandeni jakchi taridapgipa ge·a gamani cholrangchi nitobegipa bimangrangko tarina man·a aroba mandeni janggi tangani gadangko ba tangka paisa man·ani cholko tang·doatnaba dakchaka. Ge·gipa botgiparang, am·sandigiparang aro sorkarini ning·o kam ka·enggiparangni nangrime kam ka·anichi agar boloniko bimang tarianiara dongwilwalko ripinga baksa manderangni janggi tanganiko chasongsaoni chasongsaona ripingnaba dakchakgen.

Agar ge·ani aro uko pale sim·e cha·ani Meghalaya a·doko janggi tanganiko tang·doatna dal·begipa on·gilani ong·a. Ia dakna nanggnirangko ja·rike dakpaanichi, salantio kam ka·e cha·enggiparangni janggi tanganiko namroro silroroatnaba dakchakgen.



Dr. Rajib Kumar Borah, Scientist-G, is a Forest Pathologist with over 30 years of experience working under the Indian Council of Forestry Research & Education (ICFRE). He has also served as the Director-in-Charge of the ICFRE-Rain Forest Research Institute in Jorhat. Throughout his career, he has focused on forest diseases in nurseries, plantations, and natural forests, along with their integrated disease management strategies. Dr. Borah has been the Principal Investigator for six research projects and two consultancy projects on agarwood. He has published more than 50 research papers in various national and international journals. Currently, he is working as the Group Coordinator (Research) at the ICFRE-Rain Forest Research Institute, Jorhat.



Dr. Nitin Kulkarni is a Forest Entomologist with more than 30 years of experience working under the Indian Council of Forestry Research and Education (ICFRE). He has served as the Director of ICFRE-Institute of Forest Productivity and as Director-in-Charge of the Tropical Forest Research Institute, Jabalpur. During his service, he worked on the bioecology of major forest insect pests in nurseries, plantations, and natural forests, along with their integrated pest management strategies. He has published 160 research articles in various national and international journals. Currently, he is working as the Director of ICFRE- Rain Forest Research Institute, Jorhat.



Harish Chandra Chaudhary is an Indian Forest Service Officer with more than 31 years of experience of working under the Government of India, the Government of Meghalaya, the Indian Council of Forestry Research and Education (ICFRE), and the National Human Rights Commission. While working under the ICFRE for five years, he was involved in the planning and execution of several forestry research projects. During his more than six years with the Government of India, he dealt with matters relating to the Forest (Conservation) Act 1980 and the Green India Mission. Under the Government of Meghalaya, he has handled issues relating to forest management, protection, afforestation, wildlife, and forestry research, education, and training. Currently, he is working as Principal Chief Conservator of Forests, Working Plan, Research & Training, and District Council Affairs, Forest and Environment Department, Government of Meghalaya.

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